

WHAT IS CLAIMED IS:

1. An audio information recording apparatus for sectioning audio information into predetermined data units and for recording the units onto an information
5 recording medium, comprising

a recording part for recording soundless data and audio data such that the soundless data and the audio data are separated from each other at a boundary between the predetermined data units, if the soundless
10 data and the audio data are sequentially recorded as the audio information onto the information recording medium.

2. An audio information recording apparatus for sectioning audio information into predetermined data units and for recording the units onto an information
15 recording medium, comprising:

first calculation means for calculating a number of the predetermined data units where soundless data is to be recorded, from a requested soundless data section,
20 if the soundless data and the audio data are sequentially recorded as the audio information onto the information recording medium;

first recording means for recording soundless data corresponding to the number of the predetermined data units, calculated by the first calculation means, and
25 for subsequently recording the audio data for every predetermined data units;

second calculation means for calculating backward
a reproduction start position of the soundless data,
from a reproduction position of the audio data at a
boundary between the soundless data and the audio data
5 recorded by the first recording means, based on the
requested soundless data section; and

second recording means for recording, onto the
information recording medium, information indicating
the reproduction start position of the soundless data
10 calculated by the second calculation means and a
recording start position of the soundless data, and
information indicating the reproduction start position
of the audio data.

3. An audio information recording method for
15 sectioning audio information into predetermined data
units and for recording the units onto an information
recording medium, comprising

a recording step of recording soundless data and
audio data such that the soundless data and the audio
20 data are separated from each other at a boundary
between the predetermined data units, if the soundless
data and the audio data are sequentially recorded as
the audio information onto the information recording
medium.

4. An audio information recording method for
25 sectioning audio information into predetermined data
units and for recording the units onto an information

recording medium, comprising:

5 a first calculation step of calculating a number of the predetermined data units where soundless data is to be recorded, from a requested soundless data section, if the soundless data and the audio data are sequentially recorded as the audio information onto the information recording medium;

10 a first recording step of recording soundless data corresponding to the number of the predetermined data units, calculated by the first calculation step, and of subsequently recording the audio data for every predetermined data units;

15 a second calculation step of calculating backward a reproduction start position of the soundless data, from a reproduction position of the audio data at a boundary between the soundless data and the audio data recorded by the first recording step, based on the requested soundless data section; and

20 a second recording step of recording, onto the information recording medium, information indicating the reproduction start position of the soundless data calculated by the second calculation means and a recording start position of the soundless data, and information indicating the reproduction start position of the audio data.

25 5. An audio information reproducing apparatus for reproduction from an information recording medium in

which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, comprising

5 a reproduction part for performing reproduction from the information recording medium in the predetermined data units, thereby to start reproduction from a top position of the audio data.

6. An audio information reproducing apparatus for
10 reproduction from an information recording medium in which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, the information
15 recording medium recording information indicating a reproduction start position and a recording start position of the soundless data, and information indicating a reproduction start position of the audio data, and the apparatus comprising:

20 first reproduction means for reproducing the information indicating the reproduction start position of the audio data; and

 second reproduction means for starting reproduction from a top position of the audio data, based on
25 the information indicating the reproduction start position of the audio data reproduced by the first reproduction means.

0594042 082901
T06280 240450

7. An audio information reproducing apparatus for reproduction from an information recording medium in which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, the information recording medium recording information indicating a reproduction start position and a recording start position of the soundless data, and information indicating a reproduction start position of the audio data, and the apparatus comprising:

reproduction part for determining a soundless data section, based on the information indicating the reproduction start position of the soundless data and the information indicating the reproduction start position of the audio data, and for reproducing the soundless data section.

8. An audio information reproducing method for reproduction from an information recording medium in which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, comprising

a reproduction step of performing reproduction from the information recording medium in the predetermined data units, thereby to start reproduction from a top position of the audio data.

9. An audio information reproducing method for reproduction from an information recording medium in which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, the information recording medium recording information indicating a reproduction start position and a recording start position of the soundless data, and information indicating a reproduction start position of the audio data, and the method comprising:

a first reproduction step of reproducing the information indicating the reproduction start position of the audio data; and

a second reproduction step of starting reproduction from a top position of the audio data, based on the information indicating the reproduction start position of the audio data reproduced by the first reproduction step.

10. An audio information reproducing method for reproduction from an information recording medium in which audio information is sectioned into predetermined data units and recorded such that soundless data and audio data are separated from each other at a boundary between the predetermined data units, the information recording medium recording information indicating a reproduction start position and a recording start

position of the soundless data, and information indicating a reproduction start position of the audio data, and the method comprising:

- 5 a reproduction step of determining a soundless data section, based on the information indicating the reproduction start position of the soundless data and the information indicating the reproduction start position of the audio data, and of reproducing the soundless data section.

US440427-082904